

# Work Order ID 110624

January-07-14 1:12:16 PM

**\*110624\***

Page 1

Item ID: 646.3013

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Blade

Start Date: 1/15/14

Start Qty: 5.00

**\*5\***

Cust Item ID:

Required Date: 1/15/14

Req'd Qty: 5.00

**\*5\***

Customer:

Reference:

Approvals:

Process Plan: MLS

Date: 14-01-07 Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

**\*NR1\***

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

646.3000

N/C

100

0.00

**\*100\***

BAND SAW

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut Blank at 4.930"

S

Ø

M4 14/01/24

110

0.00

**\*110\***

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FB150

DWG REV: N/C

FOLIO REV: AA

S

Ø

M4 14/01/24

2- deburr and break all sharp edges except otherwise noted

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Work Order ID 110624

January-07-14 1:12:16 PM

**\*110624\***

Page 2

Item ID: 646.3013

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Blade

Start Date: 1/15/14 Start Qty: 5.00 **\*5\***

Cust Item ID:

Required Date: 1/15/14 Req'd Qty: 5.00 **\*5\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							
<b>*120*</b>						5	0		M4 14/01/24
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00							
<b>*130*</b>						5	0		ent 14/01/24
QC	Memo	0.00							
Quality Control									
140	Outsource process - Heat Treat	0.00							
<b>*140*</b>									CL 14/02/04 ⑤
Outsource1	Memo	0.00							
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 22879								

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 110624

\*110624\*

Page 3

January-07-14 1:12:16 PM

Item ID: 646.3013

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Blade

Start Date: 1/15/14

Start Qty: 5.00

\*5\*

Cust Item ID:

Required Date: 1/15/14

Req'd Qty: 5.00

\*5\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start \*NR1\*

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
*150*									
Packaging	Memo	0.00							
Packaging									
			DAS						
			27						
			9-89						
155	QC5- Inspect part completeness to step on W/O	0.00							
*155*									
QC	Memo	0.00							
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
*160*									
SprayPaint	Memo	0.00							
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								
	PRIMER BATCH: 127 401								

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other
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**\*110624\***

January-07-14 1:12:16 PM

**Accept**

**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

**Cust Item ID:**

**\*5\***

**\*5\***

**Customer:**

**Reference:**

Run Start \*NR1\*

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Stop \*NR2\*

**QC:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **SPC (Y/N):** \_\_\_\_\_ **Date:** \_\_\_\_\_

170

### QC14- Inspect Spray Paint

0.00

**\*170\***

QC

## Memo

0.00

## Quality Control

180

Identify as per dwg & Stock Location: Composites 0.00

0.00

**\*180\***

## Packaging

## Memo

0.00

## Packaging

\*\*\*IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV\*\*\*

190

QC21- Final Inspection - Work Order Release

0.00

\*190\*

OC

## Memo

0.00

## Quality Control

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Picklist Print

January-07-14 1:12:16 PM

Page 1

Work Order ID: 110624

Parent Item: 646.3013

Parent Item Name: Blade

Start Date: 1/15/14

Required Date: 1/15/14

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP REV:A NEW ISSUE 12/11/09 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	209.6720	0.411	2.163158			
AISI A2 TOOL STEEL BAR, 0.500 X 1.250													

Location

Loc Qty

Loc Code

MAT006

209.672

M126438

120

M127494

89.672

2.15

MH 14/01/20

could not pull mat \*

Locked??

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

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Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

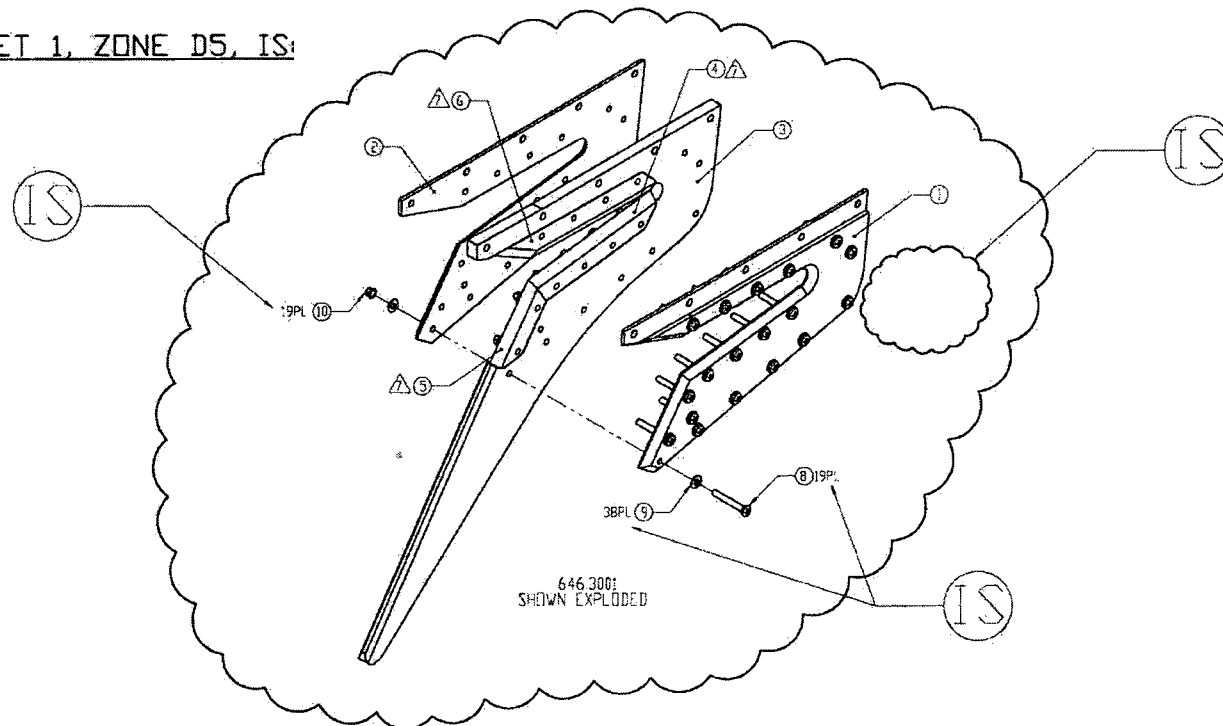
### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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<b>APICAL</b> INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02195		SHEET 1 OF 4	
	DWG NO. 646.3000	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09
	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.			
	DWG TITLE: LOWER CUTTER ASSY			
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS		

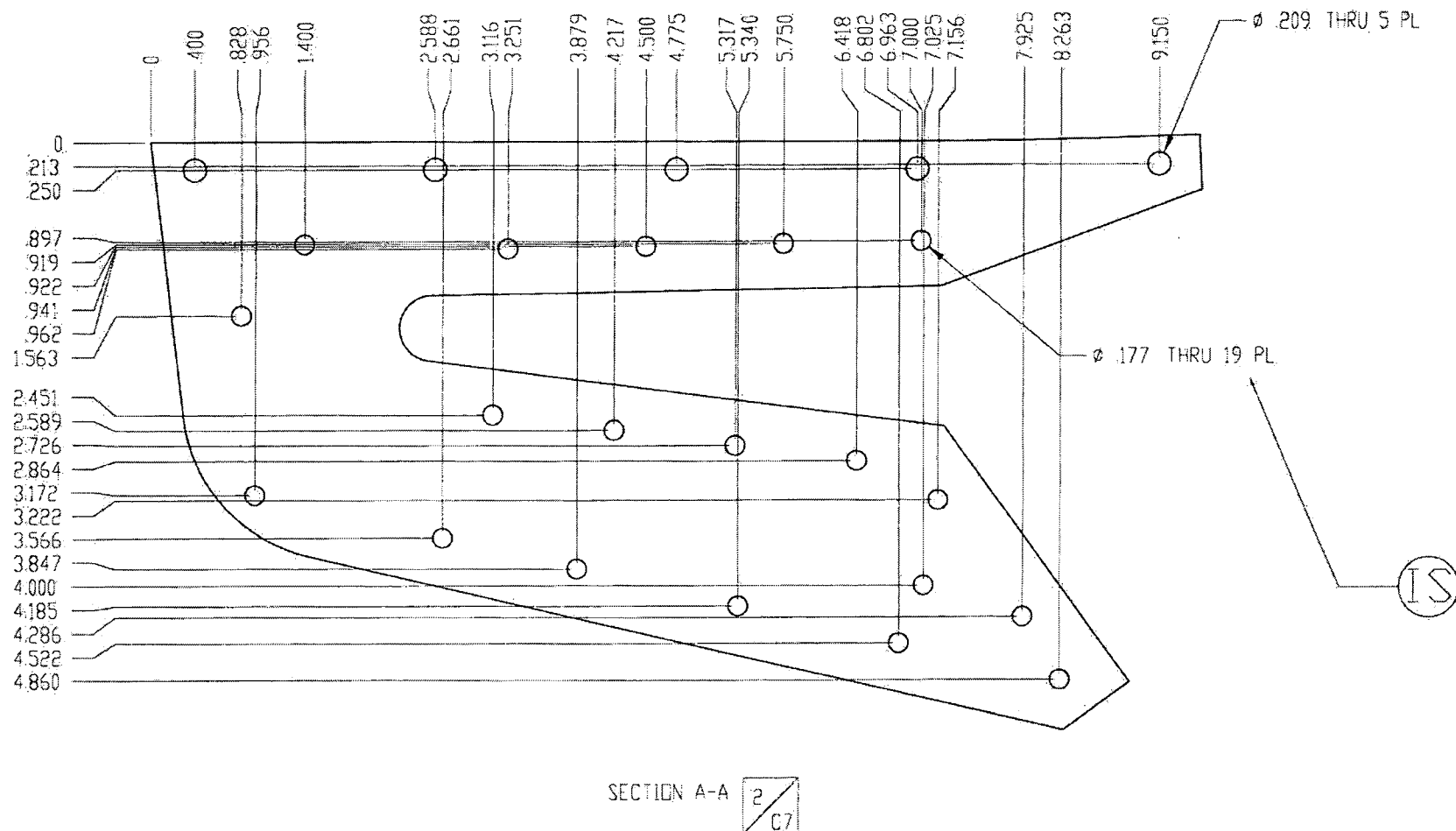
SHEET 1, ZONE D5, IS:



110624 MJS  
14-01-07

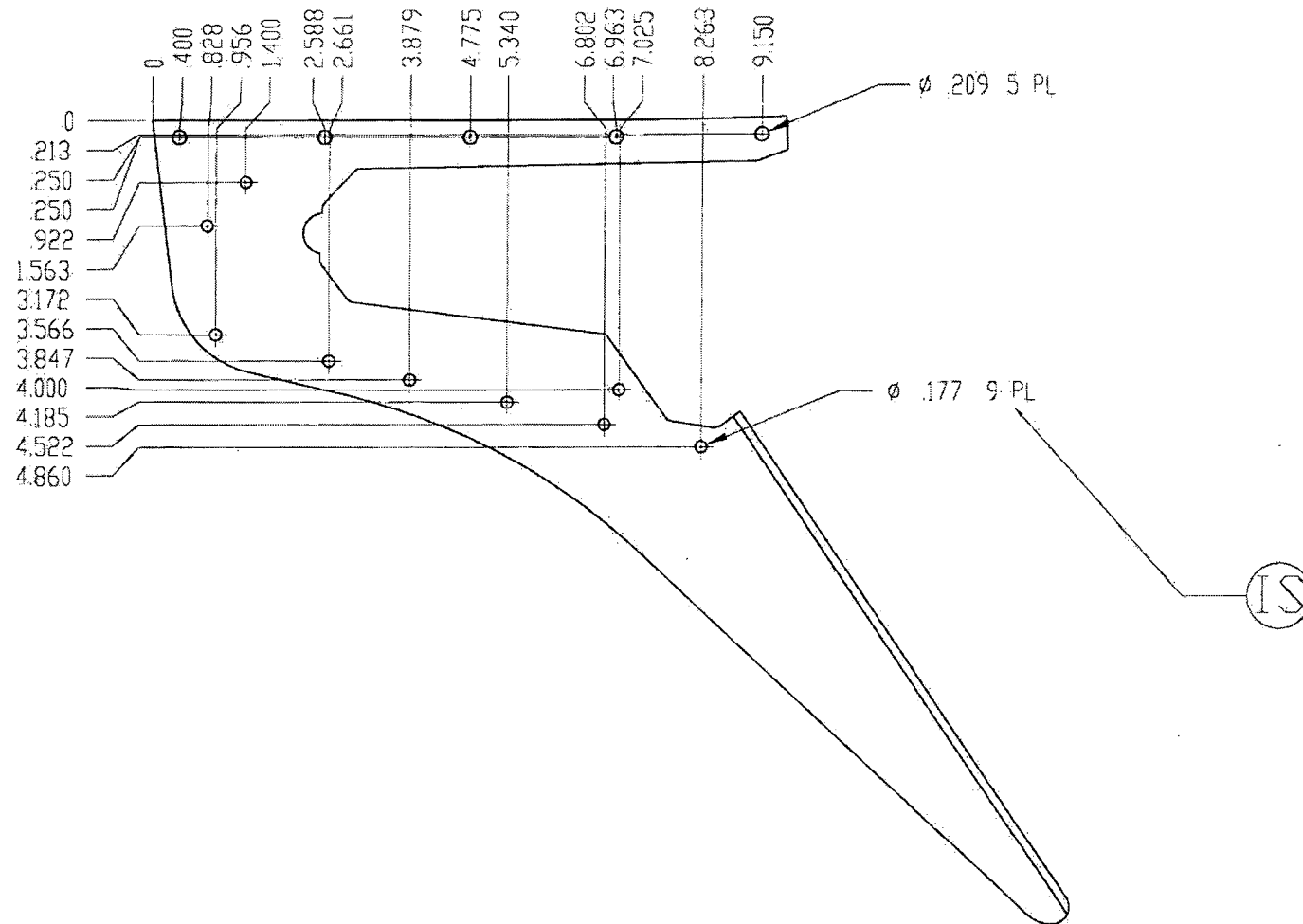
10	R	601.1541	19	LOCKNUT	MS21042L08
9	R	601.2764	38	WASHER	NAS1149FN832P
8	R	601.2765	19	SCREW	MS27039-0819
7	D	601.2766	2	RIVET	MS20470AD5-18
			3001		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:				<input type="checkbox"/> MDL <input checked="" type="checkbox"/> INSTALL INSTRUC <input checked="" type="checkbox"/> ICA <input type="checkbox"/> FMS <input checked="" type="checkbox"/> BOM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR
				DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

SHEET 3 IS:



F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

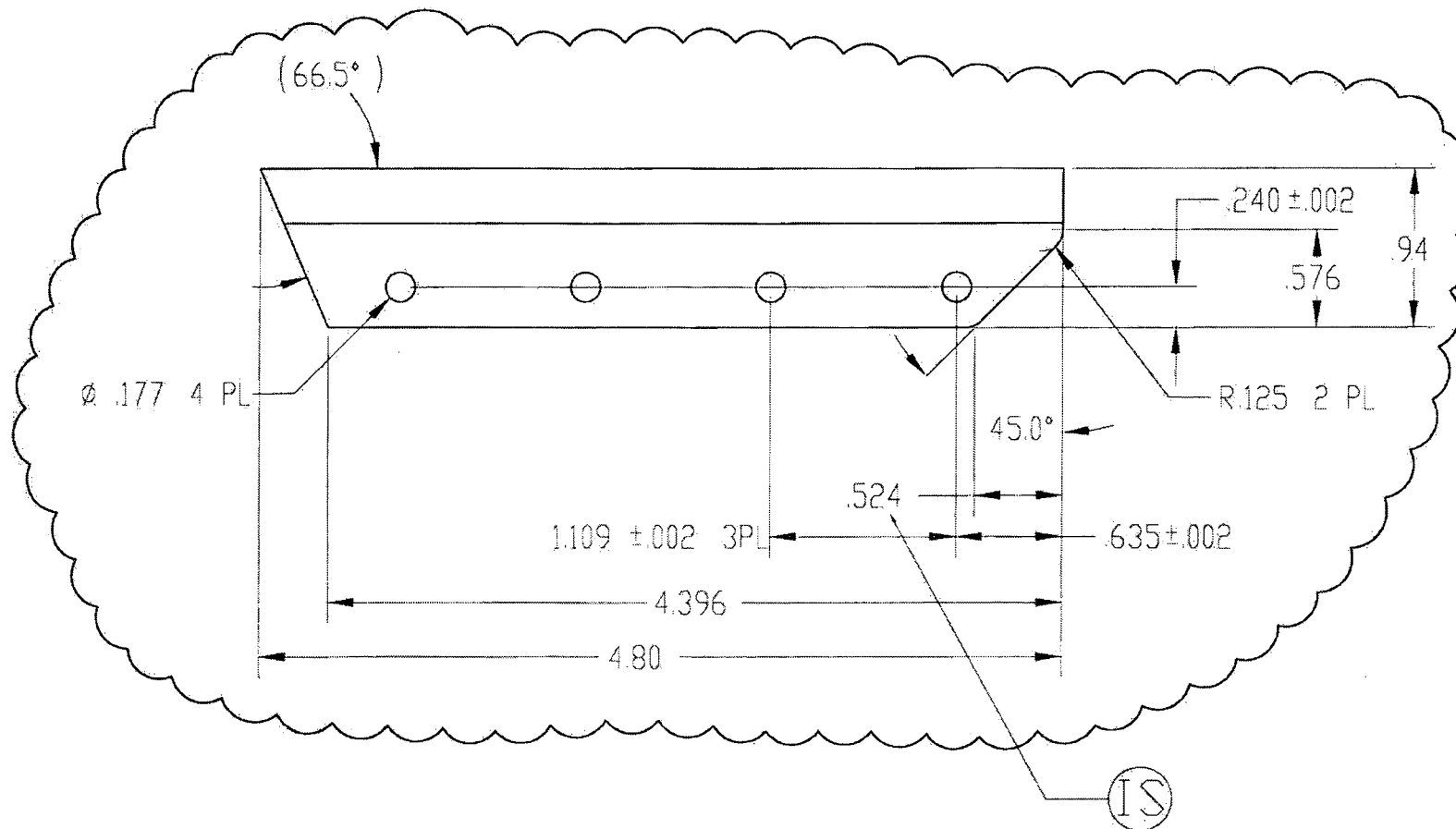
SHEET 5 IS:



SECTION F-F



F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

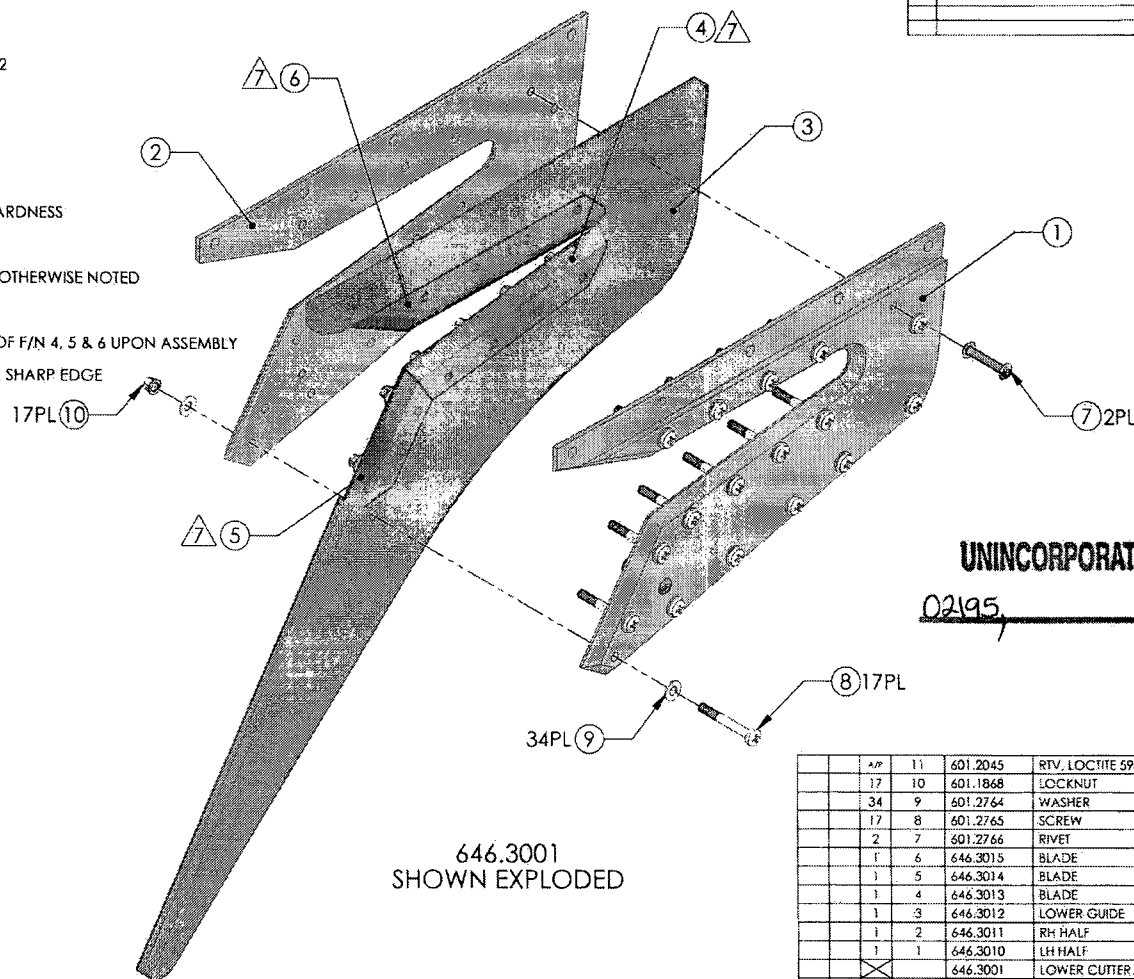
SHEET 6, ZONE C4, IS:

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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# NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4880-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL  
CONDITION: ANNEALED  
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 11 AS REQUIRED TO ALL FAYING SURFACES OF F/N 4, 5 & 6 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE



UNINCORPORATED ECN(s)

02195

QTY	P/N	DESCRIPTION	MAT'L	SPEC.
1	601.2045	RTV, LOCTITE 598		
17	10	601.1868 LOCKNUT	AL21043-06	
34	9	601.2764 WASHER	AL21043-06	
17	8	601.2765 SCREW	AL21043-06	
2	7	601.2766 RIVET	AL21043-06	
1	6	646.3015 BLADE		
1	5	646.3014 BLADE		
1	4	646.3013 BLADE		
1	3	646.3012 LOWER GUIDE		
1	2	646.3011 RH HALF		
1	1	646.3010 LH HALF		
1	646.3001	LOWER CUTTER ASSY		
QTY	P/N	DESCRIPTION	MAT'L	SPEC.
1	646.4000	LOWER CUTTER ASSY		

APICAL INDUSTRIES

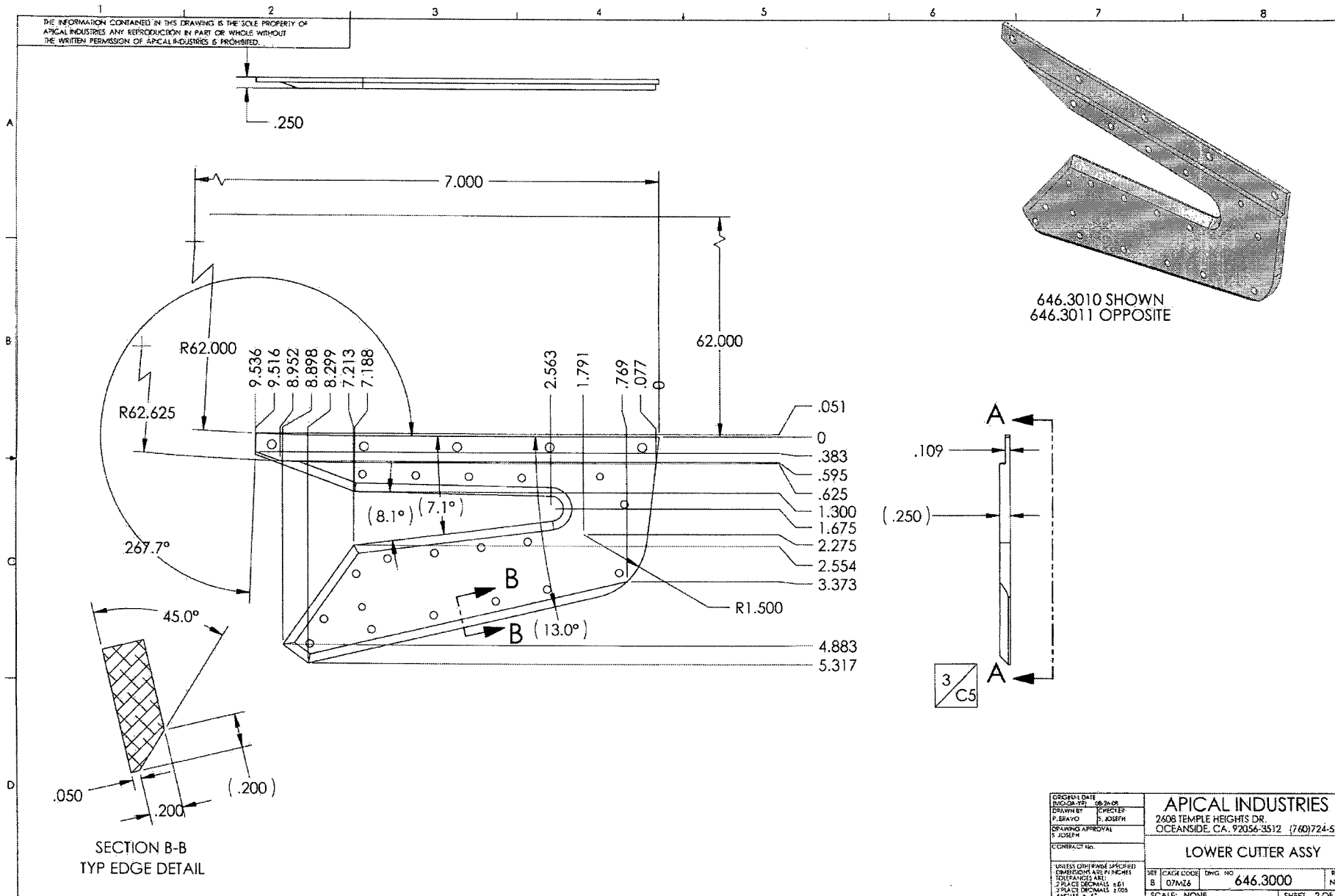
2608 TEMPLE HEIGHTS DR.  
OCEANSIDE, CA. 92056-3512 (760)724-5300

LOWER CUTTER ASSY

REV. 07/26 646.3000 N/C  
SCALE NONE SHEET 1 OF 8

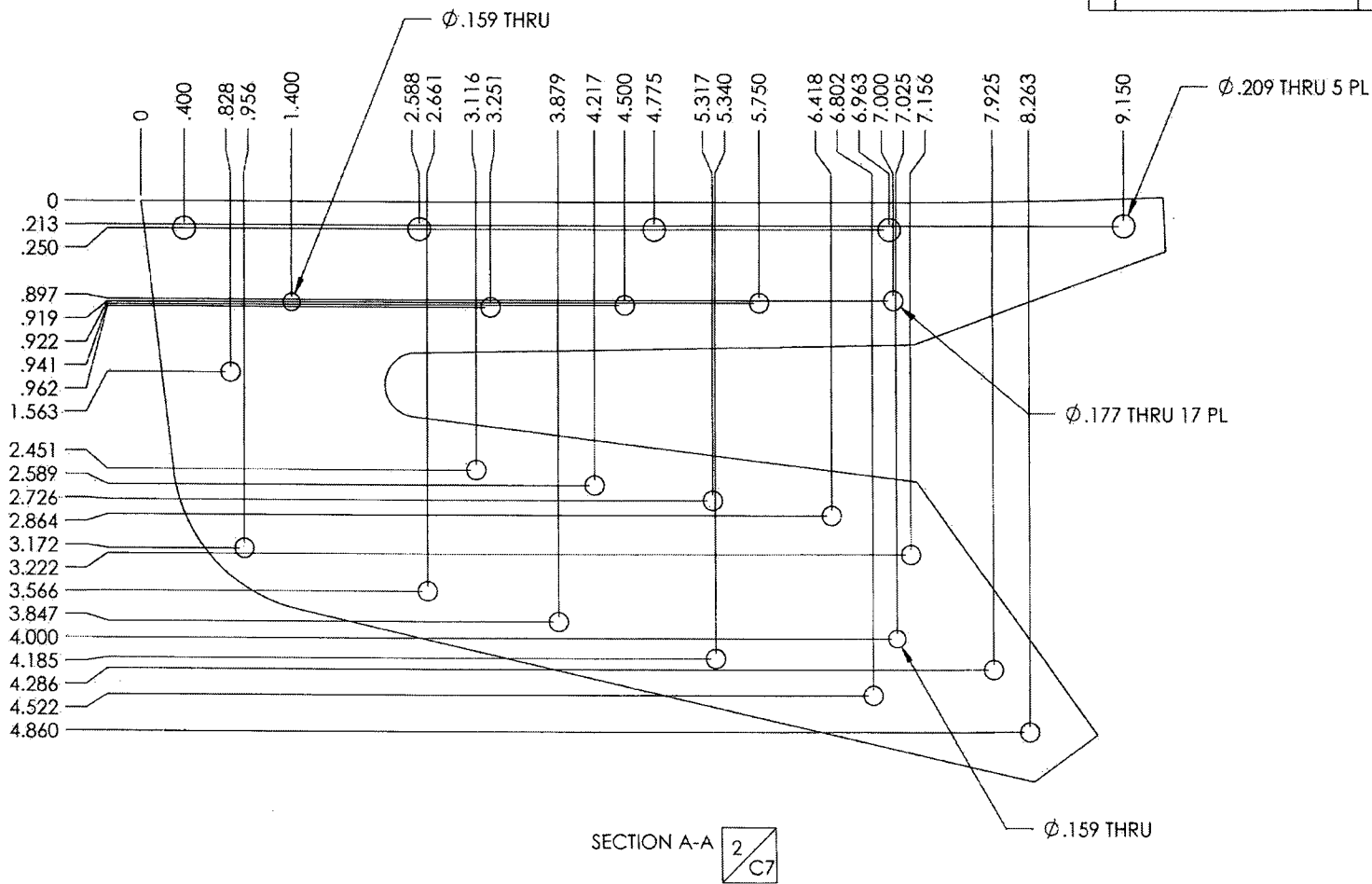


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THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF  
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THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



SECTION A-A

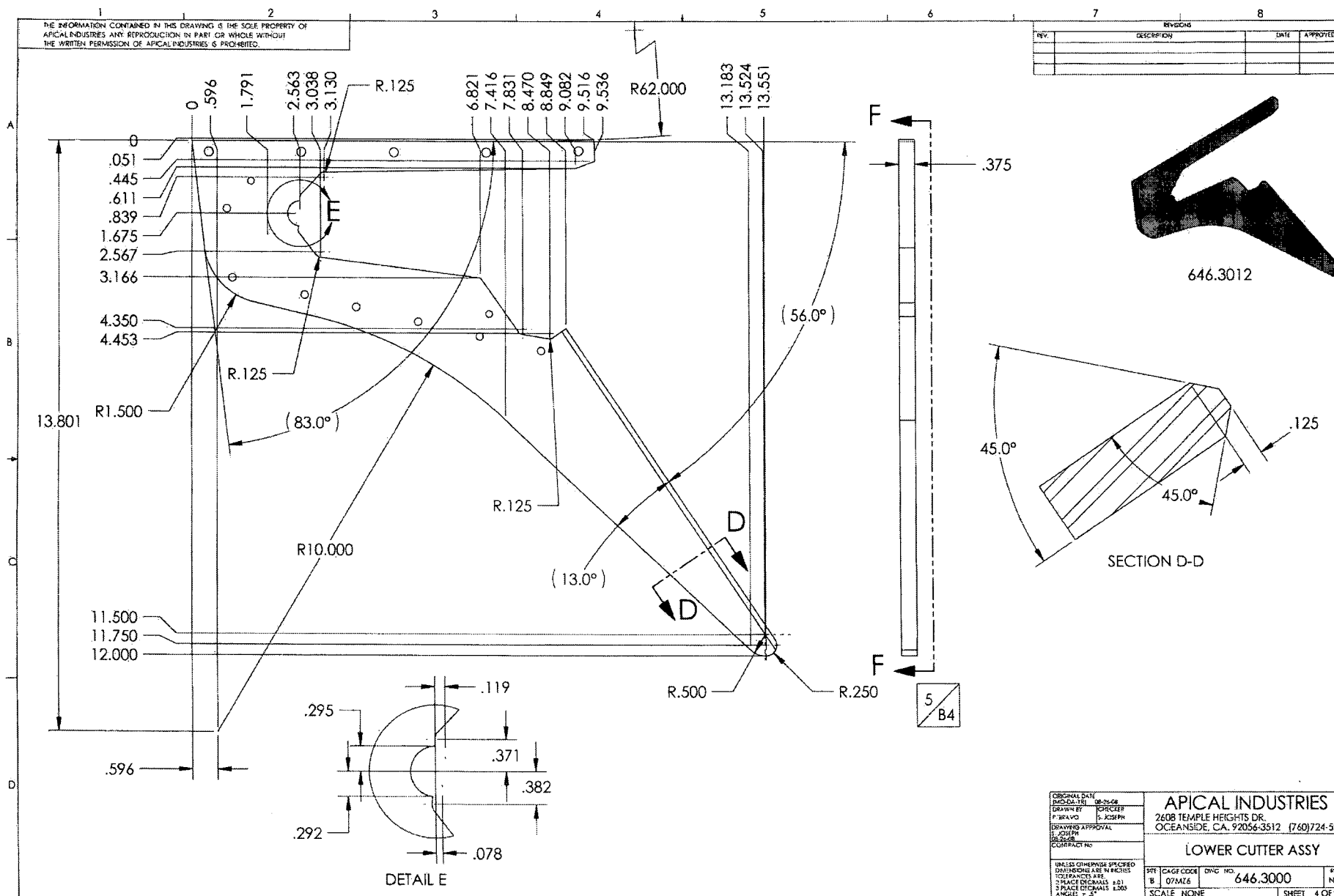
2  
C7

GENERAL DATE INVO (DA, TF) 08-26-08 DRAWING BY P BYAVO J. JESSIER DRAWINGS APPROVAL J. JESSIER 08-26-08 CONTRACT NO.	<b>APICAL INDUSTRIES</b> 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300												
<b>LOWER CUTTER ASSY</b>													
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 FRACTIONS ±.001	<table><tr><td>SIZE</td><td>CAGE CODE</td><td>QWY 340</td><td>REV</td></tr><tr><td>B</td><td>07M26</td><td><b>646.3000</b></td><td>N/C</td></tr><tr><td colspan="2">SCALE NONE</td><td colspan="2">SHEET 3 OF 8</td></tr></table>	SIZE	CAGE CODE	QWY 340	REV	B	07M26	<b>646.3000</b>	N/C	SCALE NONE		SHEET 3 OF 8	
SIZE	CAGE CODE	QWY 340	REV										
B	07M26	<b>646.3000</b>	N/C										
SCALE NONE		SHEET 3 OF 8											



THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 08-25-06  
 DRAWN BY: J. JOSEPH  
 P. TRAVO: J. JOSEPH  
 DRAWING APPROVAL: J. JOSEPH  
 CONTRACT NO:

**APICAL INDUSTRIES**  
 2608 TEMPLE HEIGHTS DR.  
 OCEANSIDE, CA 92056-3512 (760)724-5300

**LOWER CUTTER ASSY**

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 TOLERANCES ARE:  
 3 PLACE DECIMALS ±.01  
 ANGLES ±.5°

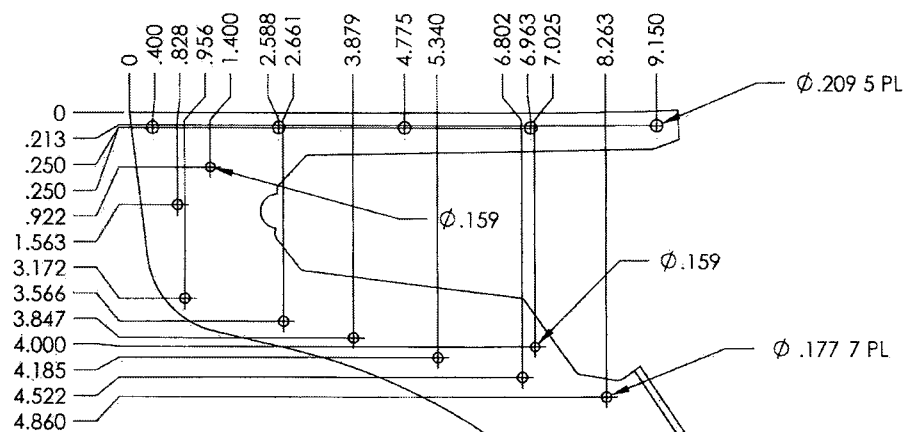
REV	DATE	DESCRIPTION

SCALE: NONE

SHEET: 4 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

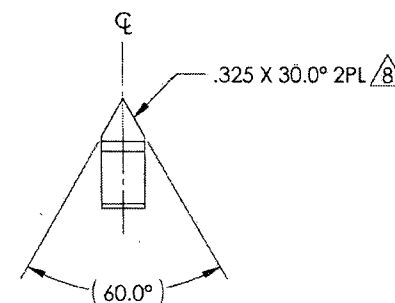
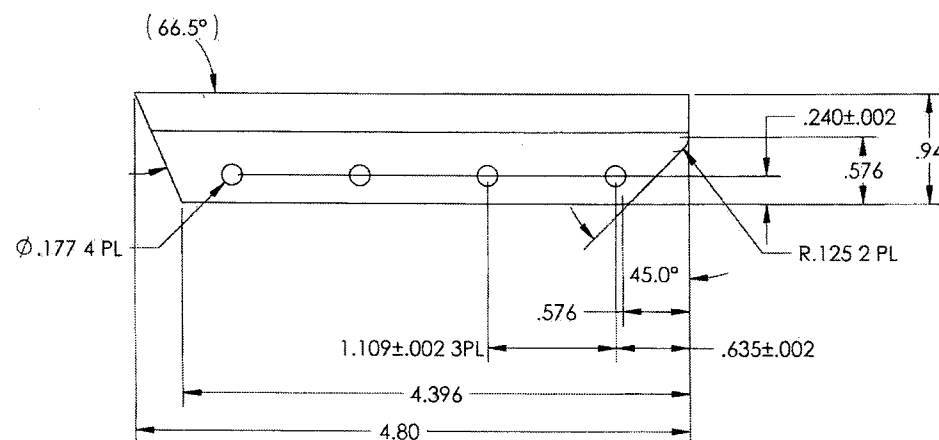
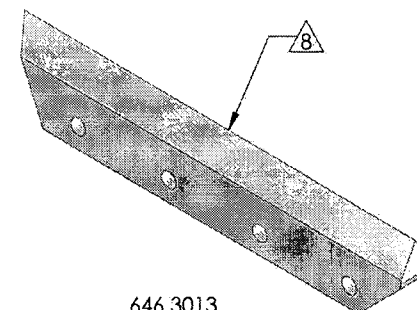
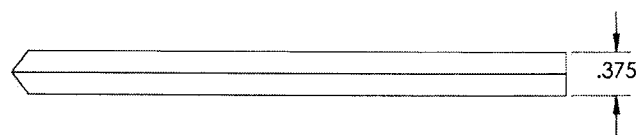


SECTION F-F 4  
B6

ORIGINAL DATE (DD-MM-YY) 08-26-08		APICAL INDUSTRIES	
DRAWN BY P. SPANO		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
CHECKED BY D. JOSEPH		LOWER CUTTER ASSY	
DRAWING APPROVAL D. JOSEPH		SCALE NONE	
DESIGN NO.		SHEET 5 OF 8	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ± .5°		REV. N/C	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

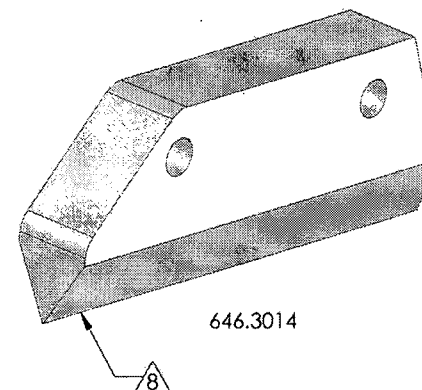
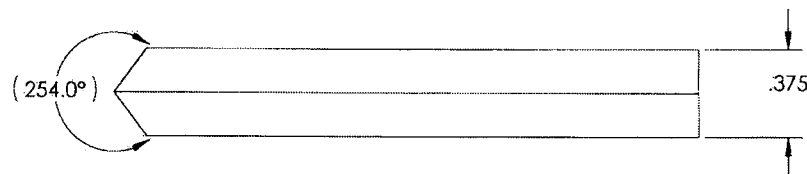
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



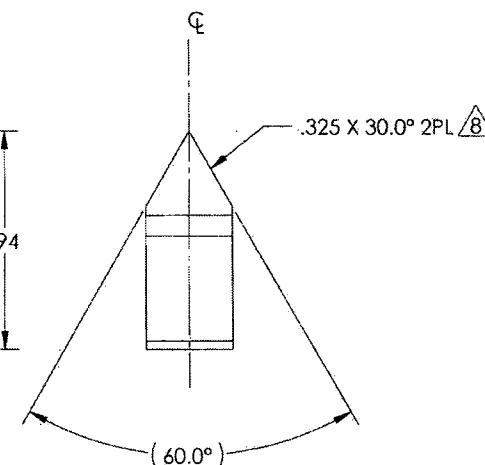
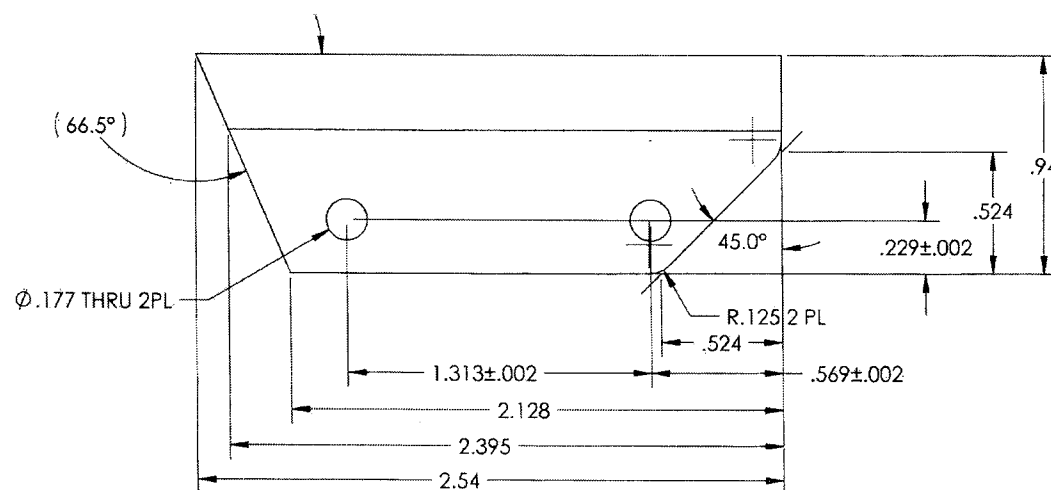
ORIGINAL DATE UNCONTROLLED 02-24-08		APICAL INDUSTRIES	
DRAWN BY: CHECKER P. BRAYO J. JOSEPH		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL S. KUMAR		LOWER CUTTER ASSY	
CONTRACT NO.		SCALE: NONE	SHEET 6 OF 8
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ±.5°		REV: N/C	

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



646.3014

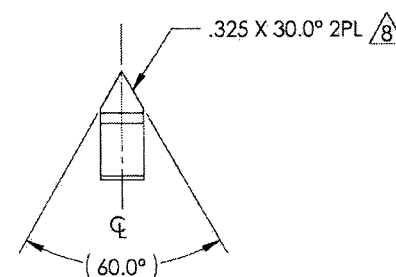
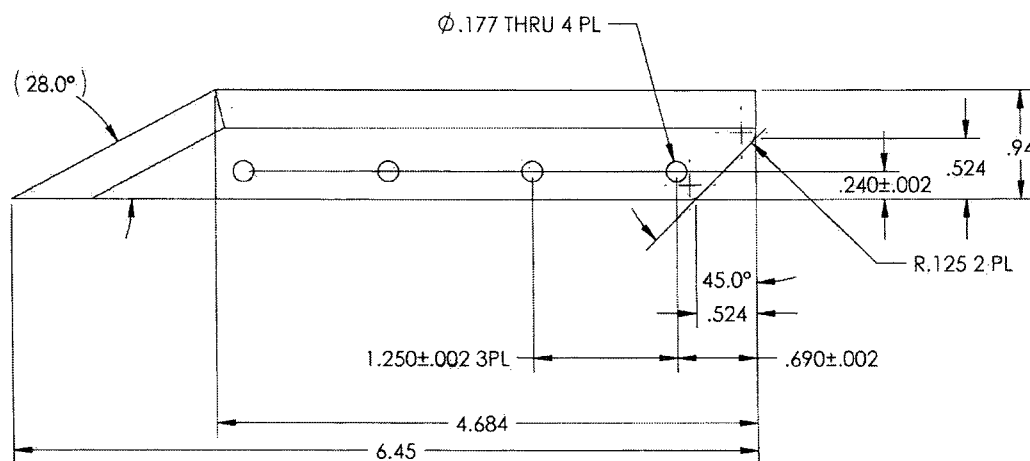
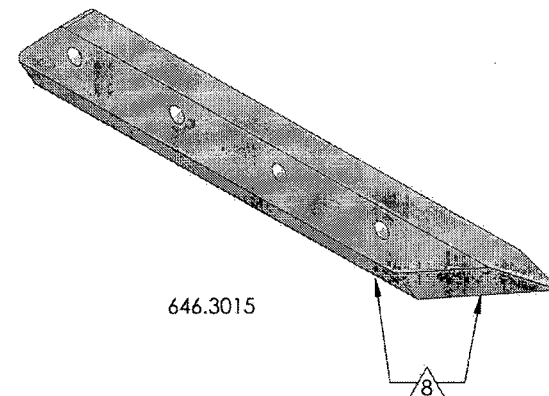
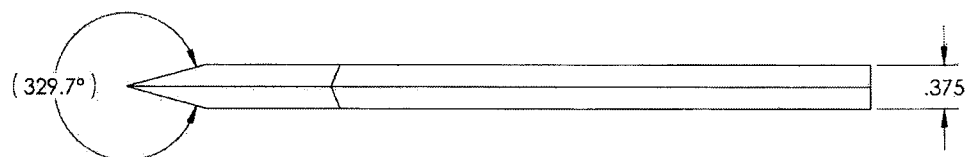


ORIGINAL DATE  
INCHES TO  
DRAWN BY  
P. SALVO  
DRAWING APPROVAL  
P. JOSEPH  
CONTRACT NO.

APICAL INDUSTRIES  
2608 TEMPLE HEIGHTS DR.  
OCEANSIDE, CA. 92056-3512 (760)724-5300  
LOWER CUTTER ASSY  
SCALE: NONE  
SHEET 7 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 08-24-08  
 DRAWN BY: CREGER  
 P. BRAYO: J. C. SMITH  
 DRAWING APPROVAL:  
 J. C. SMITH  
 CONTRACT NO.

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 TOLERANCES ARE:  
 1 PLACE DECIMALS: ±.01  
 2 PLACE DECIMALS: ±.005  
 ANGLES: ±.5°

**APICAL INDUSTRIES**  
 2608 TEMPLE HEIGHTS DR.  
 OCEANSIDE, CA. 92056-3512 (760)724-5300

**LOWER CUTTER ASSY**

SIZE	CAGE CODE	DWG. NO.	REV.
B	071M16	646.3000	N/C
SCALE: NONE			SHEET 8 OF 8





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO22879

Purchase Order Date 2/4/2014

PO Print Date 2/12/2014

Page Number 1 of 2

**Order From :**

VC-MET004

**Ship To :** DART AEROSPACE LTD

METCOR INC.  
560 BOUL. ARTHUR SAUVE  
SAINT-EUSTACHE, QC J7R 5A8  
CA

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 450 473 1884

**Ship To Contact**

**Ship To Phone**

**Ship Via:** VENDOR'S TRUCK

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #**

10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	110622	646.9711 BLADE	2/21/2014 Yes 2/21/2014		20.00	\$11.80	\$236.00
	FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS  PART ARE MADE FROM AISI A2 TOOL STEEL  NOTE: DETAIL C OF C REQUIRED						
Line Total:							\$236.00
2	110624	646.3013 BLADE	2/21/2014 Yes 2/21/2014		5.00	\$11.80	\$59.00
	FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS  PART ARE MADE FROM AISI A2 TOOL STEEL  NOTE: DETAIL C OF C REQUIRED						

**PO Instructions:** Procurement Quality Clauses  
A005 right of entry  
A012 chemical and physical test report  
A020 non-destructive test/inspection identification  
A021 dart aerospace processing  
A024 process certifications  
A026 certification of material conformance

**Note:**

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

## Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
193045	1	78659

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

LIVRÉ À /Shipped To

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
22879		A2	2014/2/4	CLIENT ?

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

25 110622

(20) 110622 646.9711 BLADE

(5) 110624 646.3013 BLADE

1 BOITE DE CARTON

7,

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE CARTON	1	

<b>EMPAQUETAGE</b> Packing	
-------------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 25

POIDS EXPÉDIÉ / Weight Shipped : 7,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

QUANTITÉ EXPÉDIÉE / Quantity Shipped: 25

POIDS EXPÉDIÉ / Weight Shipped : 7,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2014/02/10



# Metcor Inc.

560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8

560, BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Téléphone / Phone 450 491-5498

Télécopieur / Fax production 450 491-6454

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

## Rapport d'Inspection

### Inspection Report

BON DE TRAVAIL order	CHARGEMENT load
193045	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
22879		A2		

### SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5	60.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
25	7	110622 (20) 110622 646.8711 BLADE (5) 110624 646.3013 BLADE 1 BOITE DE CARTON

### COMMENTAIRES / comments

APPROUVÉ par / Approved by:

METCOR  
7

DATE: 2014-02-09